



US 20150016365A1

(19) **United States**(12) **Patent Application Publication**
Szufarska et al.(10) **Pub. No.: US 2015/0016365 A1**(43) **Pub. Date: Jan. 15, 2015**(54) **CARRIER AGGREGATION OPTIMIZATION****Publication Classification**(75) Inventors: **Agnieszka Szufarska**, Wroclaw (PL);
Klaus Ingemann Pedersen, Aalborg
(DK); **Krzysztof Kordybach**, Pulawy
(PL)(73) Assignee: **Nokia Solutions and Networks Oy**,
Espoo (FI)(21) Appl. No.: **14/359,952**(22) PCT Filed: **Nov. 22, 2011**(86) PCT No.: **PCT/EP2011/070708**

§ 371 (c)(1),

(2), (4) Date: **May 22, 2014**(51) **Int. Cl.****H04L 5/00** (2006.01)**H04W 72/04** (2006.01)**H04W 72/14** (2006.01)(52) **U.S. Cl.**CPC **H04L 5/0035** (2013.01); **H04W 72/14**
(2013.01); **H04W 72/0486** (2013.01); **H04W**
72/0426 (2013.01); **H04W 84/045** (2013.01)USPC **370/329**

(57)

ABSTRACT

The present invention provides a method, apparatus and a computer program product for carrier aggregation optimization. The present invention includes receiving, at a base station, information from another base station regarding usage of PCell and SCell per carrier at the another base station, analyzing, at the base station, the received information, configuring, at the base station, PCells and SCells for user equipment served by the base station based on the analysis of the received information.

Macro UE

- Control signaling on f_1 and/or f_2
- Data on f_1 and/or f_2

Macro UE

- Control signaling on f_1
- Data on f_1 and/or f_2

Pico UE

- Control signaling on f_2
- Data on f_1 and/or f_2

